ECEN 4613/5613 | **Embedded System Design** | **Fall 2014**

Lab #4 Signoff Sheet

You will need to obtain the signature of your TA on the following items in order to receive credit for your lab assignment. Signatures are due by **Friday, November 14, 2014 (Required Elements) and Wednesday, November 19, 2014 (Supplemental Elements)**. Labs completed late will receive grade reductions.

Print your name below, sign the honor code pledge, circle your course number, and then demonstrate your working hardware & firmware in order to obtain the necessary signatures. All items must be completed to get a signature, but partial credit **is** given for incomplete labs. Receiving a signature on this signoff sheet does not mean that your work is eligible for any particular grade; it merely indicates that you have completed the work at an acceptable level.

Student Name: Ali Ismail

Honor Code Pledge: "On my honor, as a University of Colorado student, I have neither given nor received unauthorized assistance on this work. I have clearly acknowledged work that is not my own."

Student Signature: Ali

Signoff Checklist

Required Elements

- ☑ Pins and signals labeled and decoupling capacitors present on board
- ☑ LCD functional, C code for basic LCD routines functional
- ☑ LCD control signal timing meets specifications (diagram) Mention timings
- ☑ Serial EEPROM functional, contents present after power cycle
- ☑ C code for EEPROM functional, I²C timing correct
- ☑ LCD Display and hex dump of EEPROM

Ali 11/13/2014

TA/Instructor signature and date

Supplemental Elements (Qualifies student for higher grade.)

- ☑ Elapsed time display (accurate 1 second resolution)
- ☑ Elapsed time stop, restart, reset to "00:00.0":
- ☑ Support for custom LCD characters, fun logo
- ☑ Good integration with previous code, all functions work with no irregularities

Ali 11/19/2014.

Supplemental Elements (Qualifies student for higher grade.)

- ☑ PCF8574 I²C I/O Expander
- ☑ EEPROM `eereset()` and WDT functional and correct

Ali 11/19/2014.

FOR TA/INSTRUCTOR USE ONLY Required Elements	Not Applicable	Poor/Not Complete	Meets Requirements	Exceeds Requirements	Outstanding
Schematics, SPLD code	☐	☐	☐	☑	☐
Hardware physical implementation	☐	☐	☐	☐	☐
Required Elements functionality	☐	☐	☐	☐	☐
Sign-off done without excessive retries		☐	☑		
Student understanding and skills	☐	☐	☐	☑	☐
Overall Demo Quality	☐	☐	☐	☐	☐

FOR TA/INSTRUCTOR USE ONLY Supplemental Elements	Not Applicable	Below Expectation	Meets Requirements	Exceeds Requirements	Outstanding
Supplemental Elements functionality	☐	☐	☐	☐	☐
Sign-off done without excessive retries		☐	☑		
Student understanding and skills	☐	☐	☐	☐	☐
Overall Demo Quality	☐	☐	☐	☑	☐

TA/Instructor Comments □ □ □ NOTE: This signoff sheet should be the top sheet of your submission.

- ☐ Optional Challenge: Measure LCD DDRAM search performance
- ☑ Optional Challenge: Measure EEPROM byte/page write times 2.52 / 11.8 ms
- ☑ Optional Challenge: Measure EEPROM Block Fill performance 12.88 s X1

- Check busy wait
- No GUI for testing functions of the LCD
- No error handling for I2C Eeprom

→ WDT using PCA Modules + HW Timer